

DESCRIPTIONS OF THREE NEW SPECIES OF
MYRTACEÆ.

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(Plates xxv.-xxvi.)

Introduction.—The two species of *Melaleuca* described in this paper, have, in the past, been regarded as *M. Leucadendron* Linn. or at least forms of it.

The proposal, now, to raise them to specific rank, has come about by a research, undertaken during the last four years, at the Technological Museum, on the "Melaleucas and their Essential Oils," the results having been read before the Royal Society of New South Wales. When, however, an investigation of the species passing as *M. Leucadendron* Linn., was undertaken, it was found that at least six distinct species had, in the past, been synonymised under it, by various authors working on the genus.

In the *Flora Australiensis* (Vol. iii., pp.142-143), Bentham places the following as synonyms:—*M. Leucadendron* Linn., *M. minor* Sm., *M. viridiflora* Gæertn., *M. saligna* Blume, *M. lancifolia* Turcz., *M. Cumingiana* Turcz., *M. Cunninghamii* Schau., *M. saligna* Schau., *M. mimosoides* Schau., *M. lanceolata* R.Br. Bailey, in his *Flora of Queensland*, gives as varieties:—*M. Leucadendron* Linn., var. *lancifolia*, var. *saligna*, and var. *Cunninghamii*.

In the paper read before the Royal Society, this year (1913), it has been shown that no such synonyms obtain in connection with this species, and that the above are all worthy of specific consideration. Further, it is doubtful now whether *M. Leucadendron* Linn., really occurs in Australia, comparison of Australian material having been made with the original specimens of Linnæus, in the Herbarium of the Linnean Society of London.

The two, here described, are distinct from any of the above, and so are given specific rank under the name of *Melaleuca Maidenii* and *M. Smithii*, respectively.

MELALEUCA MAIDENI, sp.nov. (Plate xxv.).

“Broad-leaved Tea-Tree.”

A tree often growing to a large size, with pale-coloured, laminated papery bark, with red streaks when cut on the quarter; branchlets angular, pubescent. Leaves erect, glabrous, ovate sometimes oblique, obtuse, subcoriaceous; petioles short; silky pubescent, mostly 5- to 7- or more nerved, rarely 3-nerved, with anastomosing veins, 4-5 inches long and $\frac{1}{2}$ inch wide. Flower-spikes terminal in all the specimens examined, or in the axils of the last two or three leaves, larger and longer than in *M. Smithii*. Rhachis and calyx pubescent. Calyx-tube short, cylindrical, about 1 inch long and 1 inch in diameter, pubescent, lobes obtuse, less than one-half the length of the petals. Petals concave, obtuse, under 2 lines long. Stamens not ringed as in *M. Smithii*. Top of the ovary silky-hairy. Fruit comparatively large, squat, cup-shaped, 3 lines in diameter at base, mostly distant at the base of the outgrowing branchlet.

Arbor mediocris vel magna. Cortex papyraceo-lamellosus. Ramuli graciles, pubescentes. Folia circiter 4-5" longa, $\frac{1}{2}$ " lata, alterna, oblongo-ovata, rigida, sæpe obliqua, nervi 3-7 vel plures, petioli pubescentes, breves. Spicæ circiter 2-3" longæ et terminales; flores subdistantes, punicei. Rhachides pubescentes. Calyces vix 1" longi, pubescentes. Antheræ 6-8" longæ. Fructus 3" longi, in orificium sensim contracti.

Hab.—Casino, Port Macquarie, and North along the coast as far as Brisbane.

Timber.—A pale, delicately tinted wood. It is hard, yet light in weight, planes easily, has a nice close grain, and even texture; polishes well, and is an excellent cabinet-timber, and one of the best all-round timbers of the Continent. It can be obtained in fair-sized logs, so could be used for bridge-decking, beams, piles, etc., as it is very durable in the ground and in water. It is really one of the finest timbers in the Museum here. It is

especially recommended, and, apart from its other qualities, it has no pronounced sapwood, being free from borers, and, therefore, cuts up with little waste.

Oil.—See paper by Baker and Smith (Journ. Proc. Roy. Soc. N. S. Wales, 1913) “On *Melaleuca Leucadendron*, its alleged synonyms, and their Essential Oils.”

Remarks.—This tree is one of those which has been regarded as *M. Leucadendron*, and, like the others of this group, is known as “Broad-leaved Tea-Tree.” As usually obtains with this Section of the Myrtaceæ, it is found growing on swampy ground or on land subject to floods.

The *Melaleucas* form a group of trees little prized for their timber, but yet they produce excellent woods, and deserve to rank higher in value in the timber-trade.

This species differs from *M. Smithii* in having a superior timber, probably the best of the genus.

Morphologically, the species differs from *M. Leucadendron* in the shape, length, and texture of the leaves, in the inflorescence, and in the chemical constituents, and in like manner from the other species listed in the Introduction; from *M. Smithii*, also in the nature of its timber, chemical constituents, leaves, and inflorescence.

It is named after Mr. J. H. Maiden, F.L.S., Director, Sydney Botanic Garden, whose work in the field of Australian Botany is too well known to be particularised here.

MELALEUCA SMITHII, sp.nov. (Plate xxvi.).

“Broad-leaved Tea-Tree.”

A tree often attaining large dimensions, with a thick bark composed of thin papery layers. Leaves very numerous, glabrous, alternate, or verticillate at the ends of the branchlets, ovate or elliptical-ovate, rigid, straight, obtuse, subcoriaceous, on short petioles, mostly about 2" long and $\frac{1}{2}$ " wide, 3- to 5-nerved, but in general with three, with anastomosing veins. The Gosford and Terrigal leaves are smaller, thinner, and narrower than the Sydney ones. Young terminal leaves silky-hairy. Flower-spikes cylindrical, short, $1\frac{1}{2}$ " long, mostly not interrupted, axillary, or 2

or 3 terminal, rhachis glabrous or with a few rusty-coloured minute hairs. Calyx-tube stumpy, cylindrical, about 1 line in diameter, or 1 line long, lobes short, hemispherical, one-half the length of the petals. Petals obtuse, 2 lines long; stamens almost white, of irregular length, connate at the base forming a ring, as shown in Plate xxvi. Fruit sessile, cylindrical, about 2 lines in diameter and $1\frac{1}{2}$ deep, rim counter-sunk before opening, but thin when mature.

Arbor mediocris vel magna. Cortex papyraceo-lamellosus. Ramuli robusti, glabri. Folia circiter 2" longa, 1" lata, alterna, elliptica, ovata, erecta, rigida, 3-5 nervis. Spicæ circiter $1\frac{1}{2}$ " longæ, axillares vel terminales, densæ, cylindræ, spicæ glabræ; flores albi. Calyces vix $1\frac{1}{2}$ " longi, glabri, lobis obtusis. Antheræ pallidæ, didymo-rotundæ. Fructus $1\frac{1}{2}$ " longi, cylindræ, truncati.

Hab.—Rose Bay, Bondi, Gosford, and Terrigal.

Timber.—A hard, close-grained, medium-weight wood, having a light pinky colour, inclined to become red, with a large wavy figure, planes and dresses well and takes a good polish. Could be used for general building purposes, but especially for posts, being, like its congeners, very durable in the ground. It would be very suitable for boat-building, and should rank as a cabinet timber of some merit, as the colour and texture are very suitable for this branch of industry. It can be distinguished from *M. Maideni* by its pronounced sapwood, which is readily attacked by borers.

Remarks.—Of the species ranked as *M. Leucadendron* in the past, this probably has the smallest leaves, except that of *M. lanceolata* R.Br., Herb. There is a specimen of this species in the National Herbarium, Melbourne, labelled by Robert Brown as *M. viridiflora*, but that cannot stand in view of Solander's figure (1788) and description, in the "Illustrations of the Botany of Captain Cook's Voyage, &c., 1768-71" (1900) edited by J. Britten, F.L.S., and published by the Trustees of the British Museum.

It is a swamp-loving species in the area of its distribution, and so gregarious, and, like its congener here described, is commonly known as the "Broad-leaved Tea-Tree."

It differs from *M. Leucadendron* in the shape, length and texture of its leaves, flowering spikes, and perhaps smaller fruits. Chemically, it is quite distinct, and differs in similar characters from *M. Maidenii* described in this paper.

M. minor Sm., has thinner and narrower leaves, and longer spikes, and produces "Cajeput" oil of commerce. *M. viridiflora* Gært., (*M. Cunninghamii* Schau.) and *M. saligna* have very much longer and broader leaves, and white woolly tomentum on the inflorescence.

M. lanceolata has leaves under 1" long, a white woolly inflorescence, and a constant trinerved venation.

It is dedicated to my colleague, Mr. H. G. Smith, F.C.S., Assistant Curator of the Technological Museum, who has now done so much organic research work on the Australian flora.

ANGOPHORA OCHROPHYLLA, sp.nov.

A large, spreading tree, with a very rough, "woolly" thick bark, glabrous in all its parts, with willowy, filiform branchlets. Inflorescence in large, terminal, loose, delicate corymbs. Leaves opposite, on short, slender petioles, lanceolate, slightly falcate, occasionally oblique, texture thin, almost membranous, pale yellowish or ochreous in colour, 3 to 5 inches long. Flowers rather small, on exceedingly slender or almost filiform peduncles. Calyx 1 line long, teeth acuminate, ribs of equal prominence. Fruits on filiform pedicels up to 6" long, 3-4" wide, 2-3" in diameter.

Arbor altitudinem 60-100' attingens. Cortex trunci squalidovel fusco-canus, rugosus, rimosus, persistens. Folia circiter 3-5" longa, breve petiolata, lanceolata, obliqua, et evidenter tenuiora quam in *A. intermedia*. Flores in corymbis. Fructus 2-3-4" longi, truncato-ovati.

Hab.—Myall Creek, Bingara (C. F. Laseron), Woodburn (W. Bäuerlen).

Remarks.—On a cortical classification, this *Angophora* falls into the rough barks, but yet it has a bark quite unlike any other described species of the genus. In field-facies, it much resembles *Eucalyptus Bridgesiana*, the bark especially so; in fact, the barks of the two trees are identical in character.

The leaves differ from its congeners in having a bright yellow or pale colour, due to the presence of a dye, probably Myrticolorin. The terminal branchlets are very slender, and the fruits are supported on filiform peduncles. All these characteristics, as well as the timber and oil, differentiate it from other Angophoras. Another feature, which might be noted, is that the leaves are often attacked by an insect, which entirely alters their normal conformity.

At Bingara, it is found as a medium-sized tree, 60 feet high, and 4 feet in diameter, growing in the vicinity of creeks and rivers, and has a woolly, somewhat "Box-like" appearance (C. Laseron); whilst, at Woodburn, it is a large, spreading tree, with very rough bark (W. Bäuerlen).

Timber.—Hard, open-grained, yet interlocked timber, of a light grey, pale chocolate, or fawn colour.

No local use appears to be made of the wood, so that data are not available as to its adaptability or otherwise in Technology.

Oil.—My colleague, Mr. Henry G. Smith, F.C.S., states concerning this oil:—The oil of this Angophora does not differ, in general constituents, from that of the other oil-yielding species of Angophora. The yield of oil, from leaves and terminal branchlets, was 0.13 per cent., and this consisted principally of dextro-rotatory pinene with a high rotation, two esters of geraniol (geranyl-acetate and geranyl-valerianate), free geraniol, a small amount of volatile aldehyde, together with a low-boiling ester, which had the odour of amyl-acetate, and a small amount of sesquiterpene. Neither cineol nor phellandrene was present, nor do these constituents occur in the oils of the Angophoras.

EXPLANATION OF PLATES XXV.-XXVI.

Plate xxv.—*M. Maidenii*.

Fig. 1.—A flowering branchlet with leaves, etc.

Fig. 2.—Individual flower (enlarged).

Fig. 3.—Spike of fruits.

Plate xxvi.—*M. Smithii*.

Fig. 1.—Flowering branchlet, showing leaves, and unexpanded fruits.

Fig. 2.—Individual flower (enlarged).

Fig. 3.—Stamens, showing attachment at base in bundles.

Fig. 4.—Fruits in cluster on branchlet.